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### (54) Fingerprint detecting device and method

(57) In a fingerprint detecting device, the skin surface of a finger is pressed against a transparent body. A light source irradiates incident light from an inside of the transparent body on the skin surface. A thin surface film layer is formed on the surface of the transparent body, on which a three-dimensional pattern of the skin surface is transferred by pressing the finger, to pass the incident light from the light source in an area where the surface film layer contacts the surface of the transparent body. A fluid layer is formed by sealing one of a gas and a liquid between the surface of the transparent body and the surface film layer. The fluid layer is pressed by the surface film layer on which the three-dimensional pattern of the skin surface is transferred and totally reflects the incident light from the light source in an area where the fluid layer contacts the surface of the transparent body. An image detection unit detects an image fingerprint pattern on the basis of the light from the light source, which is reflected by the surface of the transparent body, when the surface film layer comes into contact with the surface of the transparent body in accordance with the three-dimensional pattern of the skin surface. A method for this device is also disclosed.

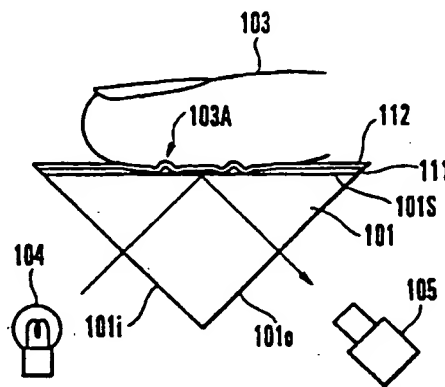


FIG. 1

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# EUROPEAN SEARCH REPORT

Application Number  
EP 98 10 5471

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 194 783 A (FUJITSU LTD) 17 September 1986 * column 10; figures 16,17 *	1-9	G06K9/00
A	US 4 322 163 A (SCHILLER MICHAEL) 30 March 1982 * abstract; figure 6 *	1-9	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			G06K
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 24 June 1999	Examiner Granger, B
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone  Y : particularly relevant if combined with another document of the same category  A : technological background  O : non-written disclosure  P : intermediate document</p> <p>T : theory or principle underlying the invention  E : earlier patent document, but published on, or after the filing date  D : document cited in the application  L : document cited for other reasons  &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.02 (Pst/Cor)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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24-06-1999

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0194783	A	17-09-1986	JP 1781416 C	13-08-1993
			JP 4071229 B	13-11-1992
			JP 62187817 A	17-08-1987
			JP 1998913 C	08-12-1995
			JP 7011824 B	08-02-1995
			JP 62187818 A	17-08-1987
			JP 1818397 C	27-01-1994
			JP 5025145 B	12-04-1993
			JP 62187819 A	17-08-1987
			JP 1049997 B	26-10-1989
			JP 1565445 C	25-06-1990
			JP 61201380 A	06-09-1986
			JP 1677135 C	26-06-1992
			JP 3038621 B	11-06-1991
			JP 61221883 A	02-10-1986
			JP 1652528 C	30-03-1992
			JP 3012752 B	20-02-1991
			JP 62042285 A	24-02-1987
			JP 62074174 A	04-04-1987
			JP 1628305 C	20-12-1991
			JP 2052309 B	13-11-1990
			JP 62074175 A	04-04-1987
			JP 1628306 C	20-12-1991
			JP 2052310 B	13-11-1990
			JP 62074177 A	04-04-1987
			JP 62140187 A	23-06-1987
			CA 1246179 A	06-12-1988
			DE 3688339 A	03-06-1993
			FI 860862 A,B	04-09-1986
			US 4728186 A	01-03-1988
US 4322163	A	30-03-1982	AT 32554 T	15-03-1988
			CA 1166445 A	01-05-1984
			DE 3176657 A	31-03-1988
			EP 0052348 A	26-05-1982
			EP 0052349 A	26-05-1982
			JP 57111778 A	12-07-1982
			JP 57111779 A	12-07-1982
			DE 2846190 A	03-05-1979
			FR 2407530 A	25-05-1979
			GB 2007899 A,B	23-05-1979
			JP 54078154 A	22-06-1979
			DE 2846189 A	26-04-1979
			FR 2407533 A	25-05-1979
			GB 2007415 A,B	16-05-1979
			JP 54077499 A	20-06-1979

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82